Instructions: Do not use any Python libraries and write the following codes from scratch for best learning/ revision.

1. Given a number, find the sum of its digits. Take the number as an input from the user.

2. Given a number, check whether the given number is an Armstrong number or not. A positive integer is called an Armstrong number of order n if:

   abcd... = $a^n + b^n + c^n + d^n + ...$

   Example: $153 = 1*1*1 + 5*5*5 + 3*3*3$

   153 is an Armstrong number of order 3.

Inputs from the user will be number and order n.

3. Given a string, write a python function to check if it is palindrome or not. A string is said to be palindrome if the reverse of the string is the same as string. For example, "malayalam" is a palindrome, but "music" is not a palindrome.

4. Given an array which may contain duplicates, print all elements and their frequencies.

5. Given a number n, write a function to print all [prime factors](#) of n. For example, if the input number is 12, then output should be "2 2 3".

6. Given two numbers n and r, find the value of ^nC_r (binomial coefficient: $^nC_r = (n!) / (r! * (n-r)!)$)

7. Searching: Given a sorted array arr[] of n elements, write a function to search a given element x in arr[]. Do it using linear and binary search techniques.

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